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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/388,265	09/01/1999	JIN-KUO HO	82666-000100	3661

7590 01/13/2004
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EXAMINER

VU, HUNG K

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/388,265

Applicant(s)

HO ET AL.

Examiner

Hung K. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-27 is/are allowed.
- 6) ☒ Claim(s) 8-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Miki et al. (PN 6,268,618, of record).

With regard to claim 8, Miki et al. discloses, as shown in Figures 1, 6-12 and 15-22, an ohmic contact in a semiconductor device which is formed on a p-type semiconductor material (30), the ohmic contact comprising a layer of p-type semiconductor oxide (NiO) and metal (Ni) in a condition of mixed morphology, wherein both the p-type semiconductor oxide and the metal electrically connect the p-type semiconductor material [Col. 16, lines 42-55 and Col. 18, lines 46-48].

Note that at Col. 9, lines 11-21, Miki et al. discloses semiconductor oxide (11b) has the same material as that of the invention (NiO or SnO). It is inherent that the semiconductor oxide (11b) is p-type.

With regard to claim 9, Miki et al. discloses the layer of semiconductor oxide includes a single oxide layer [Col. 9, lines 11-21].

With regard to claim 10, Miki et al. discloses the p-type semiconductor oxide includes a mixture of various oxides [Col. 9, lines 11-21].

With regard to claim 11, it is inherent that a solid solution layer is being formed as result of the semiconductor oxide.

With regard to claims 12 and 15, Miki et al. discloses the semiconductor material is p-type GaN, which is generally represented by $Al_xGa_yIn_zN$, wherein $z = 1-x-y$, $0 < x, y, z < 1$ and $x+y+z = 1$ [Col. 1, lines 17-32].

With regard to claim 13, Miki et al. discloses the p-type semiconductor oxide is one of NiO and SnO [Col. 9, lines 11-21].

With regard to claim 14, Miki et al. discloses the metal is Au, Pt, Rh, Ru or Ir [Col. 9, lines 1-6].

Allowable Subject Matter

2. Claims 16-27 are allowed.

3. The following is an examiner's statement of reasons for allowance:

Applicant's claims 16-27 are allowable over the references of record because none of these references disclose or can be combined to yield the claimed ohmic contact in the

semiconductor device in which the layer of p-type semiconductor oxide is located on the p-type semiconductor material and the conductive layer is located on the layer of p-type semiconductor oxide, in combination with the remaining claimed limitations.

Response to Arguments

4. Applicant's arguments filed 10/22/03 have been fully considered but they are not persuasive.

It is argued, at page 7 of the Remarks, that Miki et al. does not disclose both the p-type semiconductor oxide and the metal (11b/111b) connect the p-type semiconductor material (30), as recited in claim 8, due to the first layer (11a/111a) therebetween. This argument is not convincing because Miki et al. discloses, as shown in Figures 1, 6-12 and 15-22, both the p-type semiconductor oxide and the metal (11b/111b) electrically connect the p-type semiconductor material (30). Note that the claimed language does not specifically state whether both the p-type semiconductor oxide and the metal in physical contact or directly connect the p-type semiconductor material, therefore, Applicants' claim 8 does not distinguish over the Miki et al. reference.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

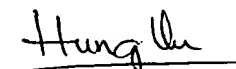
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

January 7, 2004



Hung Vu

Patent Examiner